OCTOBER, 1905.

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Cryptohalictoides spiniferus Viereck.

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ENTOMOLOGICAL NEWS

AND

PROCEEDINGS OF THE ENTOMOLOGICAL SECTION

ACADEMY OF NATURAL SCIENCES, PHILADELPHIA.

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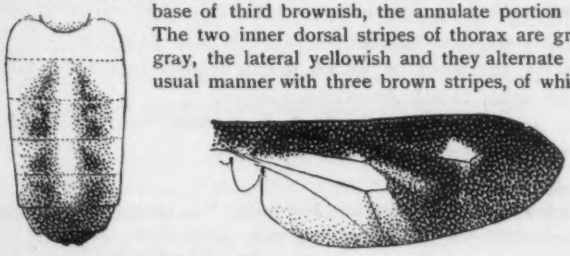
Two New Species of Diptera from New Jersey.

BY ERICH DAECKE.

Chrysops bistellatus n. sp. ♀

Length 8–9½ mm., body slender.—Face, facial collosities and palpi yellow. Cheeks brownish. Front covered with yellow pollen which also surrounds the annulate and facial orbits. Frontal callus black. The brownish ocellar tubercle is connected with the frontal callus by a narrow, shiny black line. First segment of antennæ yellow, second and base of third brownish, the annulate portion black. The two inner dorsal stripes of thorax are greenish gray, the lateral yellowish and they alternate in the usual manner with three brown stripes, of which the



Abdomen and wing of C. bistellatus.

mid-dorsal one is relatively narrow. The pleura are light yellow with the usual dark brown stripes. Scutellum yellowish brown. Abdomen yellow, with one broad, light brown stripe on each side. These stripes begin narrowly at base of second segment attaining their full width apically and thus form a rectangular triangle; the right angle being

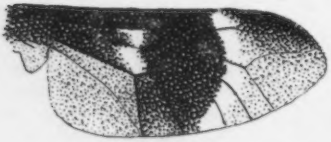
apically dorsad. At the fifth, sometimes the sixth, segment these stripes coalesce and occupy the full area of the abdominal apex. The brown stripes are of uncertain contour and often intensified in color toward the center of each segment, thus forming a line of indefinitely shaped spots. On some specimens these spots occupy the full width of the lateral stripes, in which case they form a dark brown stripe right and left. The last two or three segments are always more infuscated than the others. Venter yellow, darkened at apex and a light brown line on either side abbreviated anteriorly. Legs reddish yellow, base of hind femora brown, the distal two thirds of front and hind tibiæ brownish or black; the distal half of middle tibiæ brownish. Tarsi black, middle and hind tarsi reddish at base. Wings: the apical spot occupies the entire apex and coalesces with the crossband except on the first submarginal cell where a quadrate hyaline spot infringes in a diagonal position equally on the crossband as well as the apical spot. The upper corner of this hyaline spot touches where the second longitudinal vein slightly curves. The lower corner infringes slightly upon the first posterior cell and in rare cases continues in a semi-hyaline fashion as a narrow shade into the second posterior cell. The distal corner of the hyaline spot slightly exceeds the point where the third vein branches. The brown costal border embraces the first basal cell except a small distal spot. The second basal cell is slightly infuscated at the upper proximal portion. The third and fourth posterior cells are brown, the fifth is clouded at its distal half, a shade which fades away into the outer border of the anal and axillary cells. The posterior branch of the fifth longitudinal vein is surrounded by a brown shade widening toward the posterior margin. The discal cell lightens towards middle and base into a semi-hyaline shade which often affects the base of the fourth posterior cell. Anal cell widely open.

In this species the hyaline triangle has practically disappeared, a character by which it can readily be distinguished from all other North American species.

The description was made from sixteen females taken at Brown's Mills Junction, N. J.

Chrysops amazon n sp. ♀

Length 9-10½ mm.—Front and face gray. The prominent frontal and facial callosities, also cheeks, shining black. Palpi black. Antennæ slender. The first and base of third antennal joints reddish, second joint brown and annulate portion of third black. Thorax, shining black; two broad grayish dorsal stripes only perceptible anteriorly. A heavy fulvous pile on pleura. The thorax and the shining black abdomen



C. amazon.

sparsely beset with short white hair. Legs black. The four posterior tarsi faintly reddish at base. Wings: the crossband fills out the fourth and fifth posterior cells, thus reaching the posterior margin. (The fifth posterior cell is a shade lighter apically on one specimen). Both basal cells brown with a hyaline dash apically. Anal and axilliary cells, anal angle and alula slightly shaded. A similar shade covers the apex. A halo follows the convex distal border of the crossband quite to the costa, thus separating the crossband from the apical spot which latter vignettes slightly into the second submargined cell. Anal cell closed.

This species resembles very closely *Chrysops pertinax* Williston, but will be distinguished readily by the heavy fulvous pile on pleura, like that of *celer*, by the crossband which reaches the posterior margin and the difference in the color of antennæ; besides this species has no sign of middorsal triangles on abdomen.

Described from four specimens taken at Brown's Mills Junction, N. J.

A New Genus and Species of Phalangida.

By Nathan Banks.

Lately I have received from Prof. J. H. Comstock a phalangid sent him by Prof. Cooley of Montana. Prof. Cooley writes that it was taken in a cave near Limespur, Montana, at a depth of 190 feet, and a horizontal distance into the earth of about 1000 feet. It will constitute a new genus and species, its nearest allies being the two species of *Sclerobunus* found under logs and among fallen leaves in the northwestern States.

CYPTOBUNUS n. gen.

A Mecostethous Phalangid with a single, simple claw to tarsi three and four. Hind coxæ but little larger than the others, united to venter only at base; body broad; legs very slender, leg two plainly longer than four, but tarsus four longer than two; the tarsi only indistinctly divided into false joints, three in tarsus two, four in tarsus four, the basal one longer than others. Eye-tubercle rather large, not very high, rounded, with two large black eye-spots above. Palpi with tibiæ and tarsi depressed, and armed laterally with long, slen-

der spines, each spine consisting of a basal part, truncate at tip and a long terminal bristle arising beneath a short spur or apophysis.

Type *C. cavicolus.*

Cyptobunus cavicolus n. sp.

Pale whitish hyaline, eye-spots black. Body but little longer than broad behind, sides slightly concave, anterior margin not one-half as long as posterior margin, surface uniformly, finely granulate; basal joint of mandibles rather long, porrect; the second joint has near base, as seen from above, a short spine on each side, fingers apparently simple. Palpi longer than body, very large and broad; the tibia and tarsus depressed, a rather slender tarsal claw; tarsus with four long spines on each side; tibia has

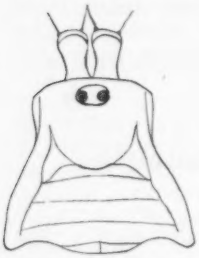


Fig. 1.—Body and mandibles *Cyptobunus.*

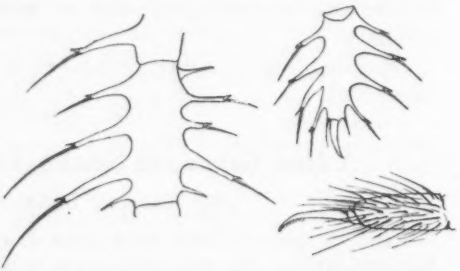


Fig. 2.—*Cyptobunus.* Tibia and tarsus of palpus and claw of leg.

three long spines on inner side, and one short one, on the outer side three short and two long ones alternating; the patella has on inner side a long spine; femur above with two on outer side toward tip, two on lower inner side toward tip, several short ones above, and below in a row are three large, long spines, a small one, another large one, and then two small ones near tip. Legs slender, granulate, with many fine hairs, most numerous toward tip; femur one about as long as body is broad, with three long spines near base on lower side, one such on the trochanter, and two on coxa one; femur two plainly longer than body, tibia two about three and one-half times as long as the patella, and metatarsus two as long as the tibia; in very strong lights the tarsi show traces of further division, but it is not definite. Length 1.6 mm.

One specimen from a cave near Limespur, Montana. The general appearance of this specimen at once places it in the suborder *Mecostethi*, but it differs from all other species known in having a simple single claw to tarsi three and four. An

allied genus, *Sclerobunus*, has the single claw, but there is a spur or branch-claw on each side toward base. Such a branched claw has been found in several other Phalangids in various parts of the world. In the old classifications the *Phalangida* were divided into two groups, differing from each other by several important characters; one of these was that in the *Mecostethi* (Laniatores) there were two claws to tarsi three and four, while the *Plagiostethi* (Palpatores) had only a single claw. Now the discovery of these forms, which by nearly all structural characters belong to the *Mecostethi*, but have a single tarsal claw throughout, provokes discussion as to their systematic position.

Loman has proposed to elevate these forms into a new suborder, the *Insidiatores;* and calls attention to some new points of difference, especially the peculiar kind of spines on the palpi. Pocock refuses to accept the *Insidiatores* as equal to the other two suborders, but keeps it as a superfamily in the *Mecostethi.* Most of the species of the *Insidiatores* come from Australia and New Zealand, a few from Madagascar and South Africa, one from Chile, and now three from the northwestern United States.

The fact that *Cyptobunus*, with its simple claws, is but a cavernicolous adaptation of *Sclerobunus*, with its branched claws, induces me to think that *Sclerobunus* is not far removed from typical *Mecostethi.* I would therefore place still less value upon the tarsal claws and consider them as only of generic value, and that the three forms of *Insidiatores* found in the northwestern States are more nearly related to the other *Mecostethi* of the neighboring regions than they are to the Australian phalangids having a similar claw-structure. Omitting the tarsal claws, *Sclerobunus* and *Cyptobunus* belong to the family *Phalangodidæ*, and possibly might form a tribe therein.

Thorell and Loman have divided the *Phalangodidæ* of Simon into three or more families, but in treating the species of the United States I do not think it advisable for our forms, and doubt if these families will hold good when the phalangid fauna of the world is more fully known to naturalists.

On the Pupation of the Noctuid Moth Harrisimemna trisignata Walk.

By Franklin Sherman, Jr.

Of this moth Dr. Holland in his Moth Book says: "Ranges from Canada to Texas and from the Atlantic to the Great Plains. The larva feeds on the winterberry and lilac."

In the literature which I have thus far been able to examine I find no reference to the pupation of this species.

On July 14, 1904, Mr. R. W. Collett, of Andrews, N. C., himself a keen observer of insect life, sent me a piece of persimmon (*Diospyros virginiana*) twig with the suggestion that it might be interesting to put it in a breeding cage to see what would come out of a certain hole which he had seen a caterpillar make in the wood but which was now filled up. He said the caterpillar was "black-banded and mottled, hairy and hump-backed, about one inch long," and added jocularly, "no doubt you will recognize it by this minute and accurate description."

Curiosity prompted me to cut the stick open sufficiently to expose the larva which was now about to pupate, The burrow was about 1½ inches long and not much wider than the diameter of the larva, certainly not large enough to allow the larva to turn around in the burrow. The larva was now reposing with the head toward the opening of the burrow which it had carefully sealed over with a tight covering of silk. At first I was of the opinion that the larva fed on the wood and had reached maturity in the burrow, but Mr. Collett at once put a quietus to this theory,—he had seen the larva at work on the burrow when only half-way in, the larva being then grown. He says: "I saw him in several stages of the work, but did not see him disappear into his hole or the after process of sealing it up. * * * I might add that all this time he was in my room."

When examined on Aug. 11, 1904, the insect had pupated, with its head toward the opening of the burrow, and on Aug. 12, 1905 (just a year later) the adult moth emerged. There thus seems to be but one brood, even though this individual might have emerged earlier under natural conditions.

The point that strikes me as curious is the making of the pupal burrow in solid wood. The twig was about ½ inch in diameter and perfectly sound. The burrow extends directly into the wood and turns downward at the center. The larva evidently ate its way into the twig until the burrow was finished, then *backed out*, turned around and *backed in again*, then, sealing up the door, pupated.

I do not know whether this observation is new to the world, but it was new to me. I should like to know (1) if this habit has been noted for this species before, (2) what the normal pupating habit of the species is, and (3) whether such a habit as here described is known in any other lepidopterous insects.

The moth, twig and pupa-skin are now in the collection of the North Carolina Department of Agriculture, Raleigh, N. C.

Oviposition of Tetragoneuria (Odonata).

By E. B. Williamson.

In 1889 the Toledo, St. Louis and Kansas City R. R. (now the Toledo, St. Louis and Western R. R.) opened a gravel pit on the farm of Peter Frantz, near Bluffton, Indiana. The excavation, covering an area of about six acres, resulted in a pond without outlet or inlet. For several years I have watched this bare pit acquire a fauna and flora in some groups surprising in their richness. It is not my purpose here to discuss this subject in any detail, but it may be remarked that this pond furnished my type of *Enallagma piscinarium*, since reported only from two or three stations in the extreme eastern United States, and that at present the species of dragonflies taken at the pond number forty, a larger number by three than can probably be taken in Great Britain at the present time.

On May 28, 1905, *Tetragoneuria cynosura* was found in limited numbers at the pond. *Tramea lacerata* was a more conspicuous species, many couples of which were flying and ovipositing, the male releasing the female just before she dipped her abdomen, catching her again deftly with his feet and then seizing her head with his long flexible abdominal

appendages. As couple after couple flew by, I observed in every case that the female grasped the abdomen of the male with her feet. The Tetragoneurias skirted the shores, each one confining itself generally to a limited stretch. About noon one was observed which seemed to have a pellet of some sort attached beneath near the end of the abdomen. It was captured, and I had no suspicion it was a female, so exactly like the males' had its flight been, till I took it from the net. I looked at once for the pellet which was sticking to the net. With Professor Needham's New York observations on the genus at once in mind, I hastened to place the pellet in water. Slowly it uncoiled into a strand of eggs about three inches long. The eggs were compact, and but little gelatinous matter was apparent. This increased rapidly in amount, however, till the diameter of the strand was about a quarter of an inch. The pellet of eggs when taken from the net was elliptical in shape, measuring about five-sixteenths of an inch in the long axis and scarcely one-fourth of an inch in the short axis. The strand when first placed in water had a diameter of less than one-eighth of an inch.

Now to see the act of ovipositing. After an hour or two of watching, an individual was seen flying with a similar yellow pellet. Back and forth she flew, sometimes fifty yards from me, in spite of my efforts to keep her in close view. One purpose of the large, widely-forked vulvar lamina, which reaches beyond the end of the ninth abdominal segment, was now plain. It is the lower flexible and movable side of a vise in which the pellet of eggs is held and carried. The female flew rapidly, evidently not looking for a point for ovipositing. The pellet, which remained apparently the size when first seen, was "ripening" so its uncoiling in the water would be more rapid than had been the case with the pellet I had taken from the first female. The flight of the female under observation became more deliberate and she approached nearer the surface. Suddenly the tip of the abdomen swept the water as rapidly as though the species were a *Libellula* or *Tramea*. Delay would be fatal here, for the pond is filled with hungry species of the bass family, which all during the day were breaking the water

in their efforts to catch Trameas,—always fruitless efforts, so far as I observed. I waded at once to the spot. The strand of eggs, possibly five inches in length, with a specific gravity slightly greater than water, was hung between two horizontal slightly submerged sedge leaves.

Notes on the Synonymy and Preparatory Stages of Illice faustinula Bdv.

By Francis X. Williams.

Mature larva.—Head bilobed, pale yellowish-green, irregularly blotched with black, leaving the clypeus and a space on either side of it and on the lobes of the vertex of the ground color, genæ obscurely darkened; upper half of submentum smoky-brown, lower half greenish; mentum smoky-brown; antennæ pale gray; ocelli 6. Head with a few pale-colored rough hairs. Width 1.6 mm. Body nearly cylindrical, thickened anteriorly, as in Papilio, but to a lesser degree, somewhat appressed ventrally, segments distinct. Markings on body of a very complicated nature. Ground color blackish, median line broad and broken, creamy pink, bordered by a gray band blotched with black, widening on the first four and last two segments, widest on third segment and tapering towards the head. This gray band is more or less crescent-shaped on each segment, making the pattern somewhat resemble a chain of ganglia. Subdorsal to this gray band is a black one, much broken in by gray; laterad is a gray band, sublateral to which is another black one exceedingly irregular. Legs and venter pale gray, a broad purplish ventral line with spots of the same color on base of legs, stigmata gray. Body adorned by rows of lemon yellow tubercles, some fused and bearing long, rough hairs, those above lateral line blackish, those below pale gray with black bands. The cut illustrates the distribution of tubercles and hairs. Length 13 mm., width at third segment 2.5 mm.

Fig. 1.—Segments 5 and 6.
Fig. 2.—Segments 1 and 2.
(*Illice faustinula*).

Described from living larvæ.

A caterpillar of rather variable shades, some being lighter and others darker in color than those of the above description. The markings on the dorsum give the larvæ a characteristic appearance.

The larvæ of *Illice faustinula* were found by me in February, 1904, near Stanford University, on the under side of fence-rails upon which grew *Ramalina menziesii* Tuck., and other lichens which the insects mimic in color. The larvæ were found also on various trees bearing patches of their food-plant. They rest during the day in shady spots on the fences or trees and feed by night. When at rest, the anal prolegs of the larvæ point directly backwards. Towards the middle of March, *faustinula* spins its weak cocoon of fine silk intermingled with its hairs and forms a short, stout, brownish pupa much like that of an arctian, paler ventrally and with a pale longitudinal band on the dorsum of the thorax. Length 8 mm., width 3.2 mm.

In San Francisco the larvæ are not fully grown until June; they may be found throughout the winter, there being but one brood annually; the younger larvæ differ but little from the mature ones. These larvæ are great spinners, spinning all over their food-plants in captivity and can suspend themselves by a thread in all stages. With all this spinning propensity, they make a very weak cocoon in some chink or crevasse; they are rather sluggish in their motions.

Last year I reared but few imagines, which all proved to be *Illice nexa*; this year, however, Mr. Grinnell raised a larger number of imagines, some of which proved to be *nexa* and some *faustinula*. Both of these forms were obtained from caterpillars not differing in any way, and in some cases most probably from larvæ hatched from one batch of eggs, as many caterpillars were taken from the same fence-rail. Of the imagines reared, most were *faustinula*, but ♂ ♂ and ♀ ♀ of both forms were obtained from the numerous larvæ. An examination of the male genitalia by Mr. Grinnell showed that they were the same in both forms.

From a large series of both forms it was found that *faustinula* and *nexa* intervaried to a considerable extent, so that both forms could be fairly well connected with one another by intermediate variations.

Illice nexa and *faustinula* were also raised by Dr. Behr from larvæ from Napa County, California, but we have no particulars from him regarding the larvæ.

The evidence cited above is certainly sufficient to synonymize *nexa* with *faustinula;* the var. *fusca* of Stretch is nothing but a dark example and has no right to be called a variety. The synonymy therefore should stand thus:

Illice faustinula Boisduval.
Syn. *nexa* Boisduval, *fusca* Stretch, *grisea* Packard, *deserta* Felder.

A few eggs were obtained from a fertile *faustinula;* they are silvery white, reticulated and somewhat flattened at the base. A small number of larvæ in the first stage were secured from these eggs by Mr. Grinnell, who gives the following description of them.

Illice faustinula Bd. First stage: Width of head 20 microns, of eleventh segment 19 microns, of sixth segment 16 microns. Body whitish, transparent; a little light brown pigment towards the cephalic and caudal extremities. Head, shining brown with a few short hairs. Body covered with long blackish hairs ranging from 3–36 microns. Body more or less cylindrical, but somewhat flattened dorsally. Legs same color as adjacent parts of body. Head strongly bilobed.

Concerning the Locust Genus Mestobregma, Scudder

By Lawrence Bruner, University of Nebraska.

The generic name *Mestobregma* (Bull. U. S. Geol. Surv. Terr., II, p. 264, June 6, 1876) was erected by Samuel H. Scudder for the reception of an insect which he erroneously took to be *Oedipoda plattei* of Thomas (Scudder in litt. to Bruner), but which in reality was the one described later by Henri de Saussure as *Psinidia* (*Trachyrhachis*) *pardalina* (Prodr. Oedip. p. 162, 1884). Since the species chosen by Scudder for the type of his new genus *Mestobregma* was undescribed at the time, and wrongfully supposed to be another and very distinct insect, the name will have to be replaced by another. During the same year Scudder suggested the name *Trachyrhachys* (since corrected to *Trachyrhachis*) for the reception of two new species of locusts which he described from the

plains of northern New Mexico. (See Ann. Rept. Chief Eng. U. S. Geol. Surv. W. 100th Merid., 1876, Append. J. J., pp. 511–513.) One of these, *coronata*, he cited as the type of the genus. Since *coronata* is now considered to be congeneric with the *Oedipoda plattei* Thomas, we should use *Trachyrhachis* in place of *Mestobregma* and take for the type of the genus *coronata* Scudd. instead of *plattei* Thom.

Professor Jerome McNeill has suggested the generic name *Metator* for Saussure's *pardalina*. (See Proc. U. S. Nat. Mus. XXIII, p. 394, Pl. XXI, fig. 3, 1901.)

Five New Species of Micronecta Kirkaldy (Aquatic Hemiptera).

By G. W. Kirkaldy.

Until 1897 these tiny waterbugs (belonging to the family Corixidæ and characterized by the conspicuous scutellum, by the head being similar in both sexes, strigil present in the males, length never more than 4½ mm., etc.) were invariably termed *Sigara* Fabricius, 1775, but in that year (Entomologist XXX, p. 260) I pointed out that *Sigara* was strictly equivalent to *Corixa* Geoffroy, 1762 (incorrectly written *Corisa* by many authors), and therefore proposed the name of *Micronecta* ("tiny swimmer"). Two years later, Bergroth (Ent. Monthly Mag. XXXV, p. 282) erected a new genus, *Tenagobia*, for the then known American forms, separating these on account of the structure of the pronotum, the posterior margin of which is emarginate in *Tenagobia*, more or less rounded convexly in *Micronecta*. Early in the next year* (Revue d'Entom. France, XVIII, pp. 101-4) Horvath revised the palæarctic species, raising the total from eight to twenty-three, and one has since been added. The learned Hungarian doctor's characters are based upon the subcostal furrow, the comparative length of the pronotum, etc., but I think the form of the mesoxyphus and antennæ should not be neglected. I have not attempted, as yet, the examination of the strigil,

* Dated Dec., 1899, but this journal is notoriously antedated.

genitalia, etc., which will undoubtedly furnish good characters.

While recently examining some aquatic forms sent me by my friend, Mr. E. P. Van Duzee, I discovered a new species of *Micronecta* from the Philippines; I add also two new species from Ceylon and two from Australia, discovered amongst purchased material.

The males of *Micronecta* terminate * the pala (anterior tarsus) by a strong curved claw; this claw is articulated with the tarsus and fits into a cavity therein, when folded back (like a clasp-knife). There are fifteen species of extra-palæarctic distribution, of which twelve or thirteen are known to me actually:

A. *Oriental.*	
1. *vanduzeei* sp. n.	Philippines.
2. *albifrons* Motschulsky, 1863 (*Corixa*)	Ceylon.
3. *grisea* Fieber, 1844 (*Sigara*)	India.
4. *thelxinœ* sp. n.	Ceylon.
5. *notata* Kirkaldy, 1897 (*Sigara*) (= ‖ *lineata* Fieber, 1844.)	India.
6. *memonides* sp. n.	Ceylon.
7. *ovivora* Westwood, 1871 (*Corixa*)	India and Ceylon.
8. *punctata* Fieber, 1844 (*Sigara*)	India.
9. *siva* Kirkaldy, 1897 (*Sigara*) (= ‖ *striata* Fieber, 1844.)	India.
B. *Ethiopian* and *Mascarene.*	
10. *felix* Butler, 1876 (*Sigara*)	I. Rodriguez.
11. *sulcata* Signoret, 1861 (*Sigara*)	Madagascar.
12. *scutellaris* Stal, 1858 (*Sigara*)	S. Africa.
13 *pilosella* Horvath †	Madagascar and Réunion.
C. *Australian.*	
14. *annæ* sp. n.	Australia.
15. *erato* sp. n.	Australia.

This brings the total of species up to 39, of which perhaps 36 are valid.

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* First pointed out by Handlirsch (1901). Fieber seems to have been unaware of this fact, and his diagnosis in 1844 is altogether erroneous.

† I have not seen the description, though I believe it is published. It is probable that *M. albifrons*, *ovivora* and *siva* may be the same species. *M. felix* is also probably synonymous with one of the other Ethiopian forms. The others, however, all seem to be valid.

M. vanduzeei sp. n.—Head and underside stramineous; pronotum and scutellum fuscous. Tegmina pale yellowish brown, with, usually, three thin, longitudinal lines of darker color (the markings, however, are not always very clear); legs pale yellow. Vertex longer than pronotum, the latter being short, elongate elliptical, lateral margins much shorter than half the width of the posterior margin of an eye. Head with the eyes a little wider than pronotum. Pronotum, scutellum, and tegmina smooth, polished, impunctate; subcostal furrow reaching at least as far as the apex of the clavus. *Mesoxyphus roundedly obtuse-angled.* Intermediate femur equal in length to tibia, tarsus and claw together; tibia a trifle shorter than the claw, which is one-half longer than the tarsus. Length, 3 mm.

Philippines, Negros Isd. (C. S. Banks in collns. Van Duzee and Kirkaldy.

M. thelxinœ sp. n.—Head and underside pallid. Pronotum and scutellum dark brownish grey, tegmina pale flavogriseous, the pronotum very narrowly pallidly margined, tegmina ornamented with pale brownish somewhat as in *M. siva*, but more faintly. Head a little longer than the pronotum, the latter being elongate elliptical, lateral margins very short (meeting actually laterally in an acute angle). Mesoxyphus rounded posteriorly. Intermediate femur about one-seventh longer than the tibia, tarsus and claw together; tibia one-half longer than tarsus, which is slightly more than half the length of a claw. Length, 2 mm.

Ceylon (my collection).

This is somewhat allied to *M. ovivora*, but is smaller and the proportion of the legs different.

M. memonides sp. n.—Head pallid. Pronotum and tegmina dark smoky brown with purplish reflections, lateral margins more or less pallid. Underside black, except trochanters, femora, tibiæ, tarsi and claws, and posterior margin of abdomen, all of which are pallid. Tegmina smooth and polished. Head a little longer than pronotum, rounded in front. Pronotum elongate elliptical, lateral margins about as long as half the width of the posterior margin of an eye. Mesoxyphus rounded. Intermediate tarsus nearly twice as long as the tibia, which is sub-equal to a claw. Subcostal furrow much as in *M. vanduzeei*. Length a little less than 2 mm.

Ceylon (my collection).

A very distinct little species.

M. annæ sp. n.—Head pallid. Pronotum dark fuscous brown, with darker transverse median line. Tegmina fuscuous brown (the margins of the areas narrowly darker), somewhat superficially punctured. Head a little longer than pronotum, rounded in front. Pronotum elongate elliptical, lateral margins very short, much less than half the width of the

posterior margin of an eye. Mesoxyphus *acutely triangular*. Terminal segment of antenna elongate, somewhat thickened. Intermediate femur equal in length to tibia, tarsus and claw together; tarsus one-half longer than a claw, which is equal in length to the tibia. Subcostal furrow much as in *M. vanduzeei*. Length 3¼ mm.

Australia, Victoria (my collection).

M. erato sp. n.—Head and underside pale stramineous. Pronotum pale sordid yellow, with a broad blackish brown median transverse stripe which does not reach the lateral margins. Tegmina sordid stramineous; clavus with two narrow dark brown lines running parallel to interior and corial margins, uniting at the apex of clavus. Corium with two elongate suboval areas narrowly dark-brown-bordered, and the exterior lateral margins also brownish black. Pronotum, scutellum and tegmina somewhat superficially punctured. Head rounded in front, longer than the pronotum; lateral margins of pronotum obsolescent; membrane apically angulate. Length about 3 mm.

Australia, Victoria (my collection).

[NOTE.—My friend, Mr. G. W. Kirkaldy, has sent this paper to the publisher through my hands, thinking I might be able to add a more definite locality to his new species *Micronecta vanduzeei*, and I have ventured to draw attention here to two additional species of *Micronecta* just published by Dr. Horvath in a paper entitled "Hydrocorisæ tres novæ" in volume two of the Annales Musei Nationalis Hungarici, pages 594-595, 1904. This paper could hardly have reached Professor Kirkaldy in Honolulu at the time he mailed his paper to me. The species are:

P. 594.—*Micronecta haliploides* Horvath from Ceylon. Near *M. punctata*, but with a shorter pronotum.

P. 595.—*Micronecta carbonaria* Horvath from New Guinea. Differs from all previously known specimens in being black.

The other aquatic bug described in this paper is *Plea japonica* Horvath from Japan.—E. P. VAN DUZEE, July 17th, 1905.]

MR. O. W. BARRETT recently resigned his position as enomologist and botanist of the Porto Rico Experiment Station at Mayaguez, Porto Rico, to accept the position of Plant Introducer in the office of Seed and Plant Introduction and Distribution, Foreign Explorations, United States Department of Agriculture, Bureau of Plant Industry, Washington, D. C. This title has been created for this position. Besides attending to the distribution of tropical and subtropical plants stock, he will have charge of the inspection and quarantine of both incoming and outgoing plant shipments of this section of the Bureau of Plant Industry.

Entomological Literature—The Bete Noire of the Entomologist.

By C. F. Baker, Santiago de las Vegas, Cuba.

It was with great interest and pleasure that I read the criticisms of the Editor of Entomological News on my humble efforts in the matter of entomological publication, not that they show any knowledge of the facts in the case, or any particular evidence of a desire to be just, but that they present to the scientific world a text of such burning importance and immediate interest to every working student, that he cannot now, in justice to us all, fail to carry his aggressive discussion to its logical conclusion—a thorough and fair investigation. Certainly, at this juncture in the history of entomological work in America, the pages of any journal devoted to the subject could not be filled with more important matter, and I am in great hopes that the initiative taken by Dr. Skinner may call forth the frankest possible discussions from all sides.

My individual interest in the case criticized by Dr. Skinner can be disposed of in a few words to make way for the only discussion of general interest—one covering the whole subject fairly and squarely. Before undertaking the publication of the series of reports entitled "Invertebrata Pacifica," I issued a prospectus explaining its methods and objects and sent this out broadcast so that all the world might know—a copy was addressed to Dr. Skinner. The collections I had brought together on the Pacific Slope of North and Central America were—in certain groups—as important and extensive as any collections ever made in those regions—in some more so—and material in almost all groups represented there was carefully gathered. There was the promise of a great amount of valuable matter forthcoming in the way of faunal and monographic studies by various well known students, all based on this material. I desired very much to have all this published together. Even separately I know of no place where one small part of it could be published. So I published it privately. My right in this matter was exactly that of many other individuals the world over, through whose private enter-

prise great field operations have been successfully prosecuted and reports on the same published. Parallel cases are those of Mr. Harriman and his Alaska expedition, and the Godman-Salvin Biologia Centrali-Americana. I am not a millionaire but I have managed to publish the Invertebrata Pacifica in clear and usable form. This series of reports is published on exactly the same plan as the Proceedings of the Biological Society of Washington—an irregular number of pages at odd times as the papers are ready. This feature may commend these two publications over all others of this nature in the United States—each separate number is given up wholly to one group and may be purchased separately. I shall refer to this again.

Dr. Skinner's remarks on the point of bibliography I fail entirely to appreciate. The numbers of Invertebrata Pacifica as issued are sent to the Congressional Library and to all promptly published bibliographical lists, besides to the various subscribers. Does ENTOMOLOGICAL NEWS do any more? Each part is carefully dated, and each part bears the name of the editor and publisher—usually in two places. Citations can be easily and rapidly made, and this is certainly not true of numerous other publications. If in the natural course of events, the editor finds it to his interests to change his address occasionally, it is to be regretted that this fact so disturbs the worthy Doctor. Certainly, all such changes have been thoroughly advertised. Dr. Skinner's impatience over the fact that there should be titles in the bibliographies not to be found in the Philadelphia library, evidences a condition of affairs often experienced also by isolated and independent workers who are poor in pocket—a condition unfortunately true of my own library and of most others that I know. The point of the remark I fail to see. If Dr. Skinner will remit the necessary amount, I shall be pleased to send him all the parts of these reports published, or any part he may be especially interested in, which is better than he could do for me in the case of ENTOMOLOGICAL NEWS or Transactions of the American Entomological Society. And by the way, why cannot Dr. Skinner furnish copies of the Proceedings of the Entomological Society

of Philadelphia, which so many libraries and entomologists are clamoring for? Has there been a publication more "ephemeral," more "difficult to obtain," or a greater stumbling block to rising entomologists. In like manner the "pitiable sorrows" of the European Hymenopterists in connection with Invertebrata Pacifica can be quickly assuaged through the medium of a little remittance.

That publications which depend upon one person are necessarily obscure, sporadic and ephemeral is not at all in consonance with the history of American Entomology. What about Entomologica Americana, Papilio, Bulletion of the Buffalo Society of Natural Sciences, and a dozen others which might easily be mentioned, and if there are any more difficult to obtain than some of these things published by societies and academies in times past, or even some being published now, or that have proven more "obscure," "sporadic" or "ephemeral," I should be interested to know of them. On the other hand, a considerable number of the most interesting and valuable journals and reports now being published in America and in Europe are purely private enterprises, and to my mind much more generally satisfactory and useful to the individual worker since they generally serve a single interest instead of the always diversified and usually warring interests of a society. And what periodical, even though published under the auspices of some society, cannot point back to the enthusiasm, energy and sacrifice of some single individual as its usual mainstay. In a last analysis—if the truth be known—success in most scientific societies and publications is due to the untiring, independent efforts of some single whole-souled votary of Science, who does the work while the society gets the credit.

My final remark in connection with the series of reports entitled "Invertebrata Pacifica" will be to refer all those interested to the contents of these reports, which I do not think that any student in America can be without, since they contain as large an amount of important descriptive and monographic work as any similar series of reports ever issued in this country, and they will be continued at irregular intervals until all the material of these western collections has been reported upon—

nothing more was ever promised, nor was the publication ever intended as a regularly issued journal. In order to save Dr. Skinner further apprehension as to this publication's eventually meeting the same untoward fate as Hübner's work, I present the following important data. Other numbers with new work on the Homoptera and Hymenoptera are now in the printer's hands. I only wish that we might extract similar data from a dozen other scientific publications—published by societies.

INVERTEBRATA PACIFICA.

Vol. I, pp. 1-12, September 15, 1903, Homoptera (On the Gnathodus species of the Abdominalis group, C. F. Baker; a new genus of the Typhlocybini, C. F. Baker; the genus Erythria in America, C. F. Baker; New Typhlocybini, C. F. Baker; notes on Macropsis, C. F. Baker).

Vol. I, pp. 13-16, November 30, 1903, Orthoptera (First Decade of Orthoptera issued in the Invertebrata Pacifica series, C. F. Baker; additional Notes on Pacific Coast Orthoptera, C. F. Baker; new Orthoptera from Nevada, A. P. Morse).

Vol. I, pp. 17-40, February 10, 1904, Diptera (Reports on Californian and Nevadan Diptera, I, C. F. Baker, with descriptions of new species and genera by D. W. Coquillet; two New Siphonaptera, C. F. Baker).

Vol. I, pp. 41-70, August 20, 1904, Hymenoptera (Descriptions of some New Hymenoptera from California and Nevada, J. J. Kieffer; New Hymenoptera mostly from Nicaragua, P. Cameron).

Vol. I, pp. 71-84, January 30, 1905, Orthoptera (Second Report on Pacific Slope Orthoptera, C. F. Baker, with descriptions of New Species by J. A. G. Rehn, and by C. F. Baker).

Vol. I, pp. 85-92, May 15, 1905, Neuropteroid Insects (Notes on Neuropteroid Insects of the Pacific Coast of North America, C. F. Baker, with descriptions of new species by Nathan Banks).

Vol. I, pp. 93-110, August 20, 1905, Hymenoptera (New Western Mutillidæ, I, C. F. Baker; on some Hymenoptera collected by Prof. C. F. Baker in Nicaragua, P. Cameron; descriptions of new species of Tiphiidæ from Nevada and Southern California collected by Prof. C. F. Baker, P. Cameron).

The problem of literature is the most serious one facing the American student. A very small proportion of our students are so situated as to be able to refer to the greater libraries. Even among professional entomologists we find that very few of the outside colleges, experiment stations and similar institutions will buy the very special technical works that may be needed in their investigations. The majority are compelled to privately purchase what they need, and more—even compelled to do all technical work on their own outside time, as has been the case with the writer. This regrettable condition of affairs is due to several causes—most unscientific and ill-advised in their nature and easily remediable. There are not near enough publications in the United States to-day to accommodate the amount of good work which is deserving of record. But among the societies and other scientific publishers, there is a most deplorable lack of unity and organization, and the present condition of affairs is to be expected as a natural result. I can readily cite excellent examples in illustration. I am studying certain groups of the Homoptera. Through various means, some quite accidental, I have from time to time become aware of papers on this subject published in the Proceedings of the Iowa Academy of Sciences, the Bulletin of the Illinois State Laboratory of Natural History, the Proceedings of the Davenport Academy of Sciences, the Journal of the Cincinnati Society of Natural History, the Transactions of the Maryland Academy of Sciences, the O. S. U. Naturalist, and sundry other reports and proceedings. Will Dr. Skinner tell me off hand where these are published and from whom and how they may be obtained? Some of them certainly do not bear these data in print. I am in a position to thoroughly sympathize with the "pitiable sorrows" of even the average American student who tries to run them down and get what he wishes from them—to say nothing of Europeans. In a number of these cases I could not buy the separate papers but was compelled to purchase from my slender means whole bulky volumes containing a little of everything from Astronomy and Anthropology to leaf-hoppers! But the Hymenopterist is even in a worse case, for in addition he has to buy the Bulletin of the

Southern California Academy of Sciences, part of the Proceedings of the California Academy of Sciences, parts of the Transactions of the St. Louis Academy of Sciences, the Kansas University Quarterly, the American Naturalist, the Biological Bulletin, Bulletin of the Scientific Laboratory of Denison University, Proceedings of the Academy of Natural Sciences of Philadelphia, and so on, and on, and on—and not only all this but more, for now, through the remarkably metastatic activity of one of our entomologists, he must also subscribe to various English journals, which he can probably ill-afford, in order to get together what is being written concerning the bees of his neighborhood. Surely we are building a Tower of Babel for American Entomology!

If societies cannot be convinced that the publishing of ponderous tomes containing a pot pourri of everything in science, is not only of no assistance to the greater number of scientific workers but a colossal stumbling block—then surely they might at least be led to adopt the very simple, practical and beneficent device now practiced in the case of Proceedings of the Biological Society of Washington and the Invertebrata Pacifica—the gathering of all closely allied papers in single numbers of a volume, to be issued separately.

Scientific publications, like the scientists, will be compelled to respond to the pressure of development, and specialize. The projection of antiquated methods of publication into the complexly organized and concentrated scientific work of to-day is an anomaly. The day of the ordinary entomological journal, which may attempt to cover every phase from that of entomological newspaper, with comic supplement, to a dignified technical journal, and every group of the several million species of insects, is drawing to a close—the more ephemeral it prove to be, the better. May the day soon come when we and our public institutions together shall decide to support an American "Zeitschrift für Hymenopterologie," and others of the sort, that may each cover one line and cover it thoroughly even to the copying of isolated contributions.

There are many other aspects of this question crying loudly for consideration. I shall contribute to this abbreviated dis-

cussion again later. Nothing can be accomplished except by the concerted action of the mass of American workers. I hope that some move in this direction may be made at the various meetings to be held this coming winter, and that resolutions calling for mercy and more practical treatment be presented to all academies, societies and journals, including those of Philadelphia to which Dr. Skinner owes allegiance.

If my remarks shall serve to agitate this question and bring it up for general discussion, I shall feel amply repaid for having been dragged forth and held up as a solemn warning to other laborers in the field. Simple approbation and commendation—even bare justice—for results accomplished under great difficulties and in defiance of all sorts of obstacles are perhaps more to be appreciated in this illy supported and little understood line of work than in any other, but if the opposite is to be meted out to me, I only hope that it prove a means toward the general good,—the raising of standards and the bettering of conditions surrounding the majority of American workers.

New Bees from Colorado.

By T. D. A. Cockerell.

Bombomelecta johnsoni n. sp.—♂. Length about 16½ mm., the abdomen rather long and tapering; black, the thorax densely covered with hair, the abdomen spotted. Head broad, eyes prominent; third joint of maxillary palpi longer than the second or fourth; antennæ black, not especially long, the flagellum uniformly thickened, its first joint much longer than the second, which is about as long as broad; hair of cheeks black, of occiput ochreous, of face black at sides and ochreous (with some black) in middle; scape fringed with long ochreous hair, but bare in front, its apex with a few black hairs; thorax at sides and beneath with black hair, above with abundant long ochreous hair, becoming strongly fulvous in front, and extending downwards a short distance below the tubercles; scutellar spines, small and inconspicuous; dorsum of thorax rugosely extremely densely punctured; tegulæ black, punctate; wings only faintly dusky, nervures black; legs black, with black hair, but anterior femora with a tuft of long pale yellowish hair at apex behind, and middle tibæ, with a very large light ochreous patch on the outer side; abdomen black, closely punctured, the first segment with ochreous hair, except at apex; second segment with a small obscure ochreous patch subapically on each side; third to fifth each with a widely separated pair of large ochreous spots; the second also has some ochreous hair at the extreme sides.

Hab.—Fort Collins, Colo., May 26, 1905 (*S. A. Johnson*). A very fine species, allied by the thickened flagellum to *B. azygos* Viereck, but easily known by the spotted abdomen.

Mr. Johnson states that *B. johnsoni* was taken over flowers of *Astragalus*, at the "hogback," west of Fort Collins. He suggests that it may be parasitic on *Anthophora montana*, which he took at the same place, or on *A. simillima* (syn. *cuops*), of which he took several a little further on..

Synhalonia astragalina n. sp.—♂ Length about 13½ mm.; black, the hair of occiput, cheeks, thorax and first abdominal segment fulvous, very bright and red on thorax above; abdomen with grey bands exactly as in *S. honesta* (Cr.), broad on second segment, narrower and more conspicuous on third to sixth, the intervals between the bands very black. Antennæ entirely black, long, flagellum strongly crenulate; clypeus light yellow, the yellow with a large rectangular notch on each side; labrum light yellow, with yellowish white hair, tongue and blade of maxilla very long; mandibles without any yellow spot; mesothorax strongly and densely punctured, shining and more sparsely punctured in the middle; tegulæ pale testaceous; legs black, with pale yellowish hair, the small joints of the tarsi rufous; spurs light ferruginous, quite normal. The insect looks very much like *S. honesta*, but is easily separated by its larger size, more brightly colored thoracic pubescence, entirely light anterior edge of clypeus, pale labrum, narrower face, broader apical plate of abdomen, etc. The size of *S. astragalina* is like that of *S. gillettei snoviana*, but the thoracic pubescence is of an entirely different color; the apical plate of abdomen in *astragalina* is broadly truncate; in *snoviana* it is narrower and rounded.

Hab.—Boulder, Colo., June 4, 1905 (*W. P. Cockerell*). At flowers of a small species of *Astragalus*.

Bombus rufosuffusus n. sp.—♀ Length about 25 mm.; light hair of head and thorax pale ochreous, shining whitish in some lights; hair of face (supraclypeal region and about antennæ), occiput and space just behind ocelli light, but there are a few dark hairs between the antennæ, and the hair of the extreme sides of face is black; cheeks with the hair entirely black; disc of clypeus with very sparse, small punctures; malar space about as broad as long, about one-fourth length of eye; third antennal joint shorter than fourth and fifth combined, but much longer than fifth, which is conspicuously longer than fourth; thorax with light hair in front, on scutellum, and on pleura, except its lower part; black hair on lower part of pleura, on metathorax, and a large tuft on each side of middle of thorax; middle of thorax bare, densely punctured, except a central smooth space; the bare region with the lateral black tufts give the

appearance of a very broad black band between the wings; tegulæ black; wings light fuliginous (about as dark as in *B. borealis;* not nearly so dark as in *B. sonorus*); legs with black pubescence, that on inner side of basal joint of hind tarsi very dark reddish; abdomen with the hair on the first four segments dorsally light ochreous, suffused with red at sides of second and third, the red being of exactly the same tint as that which covers the abdomen of *B. lateralis* Sm.; hair of last two segments entirely black; of venter sparse and black, with whitish hairs about the middle.

Hab.—Boulder, Colorado, June 10, 1905 (*W. P. Cockerell*). Allied to *B. fervidus*, but easily distinguished by the light hair of face, the smaller and less numerous punctures of clypeus, etc.; from *B. monardæ* it is known by its larger size, wholly black hair of hind femora, black hair of metathorax, etc.; from *B. borealis* by the light hair on pleura. By the red at sides of abdominal segments it approaches *B. vancouverensis*.

Anthophora curta Provancher.

Two males taken by Mr. S. A. Johnson at Alamosa, Colorado, August 6, 1903, at flowers of *Cleome* (*i. e., Peritoma*) differ so much that they may represent different species. One is more robust, and has black hairs on the vertex and mesothorax, as in the female; the other is more slender, the abdomen especially being less robust, and the head and thorax are without black hairs. Supposing that the one with black hairs is to be considered typical, the one without them may for the present be termed var. *peritomæ*. This var. *peritomæ* is easily known from male *flexipes* and *albata* by the normal middle tarsi, and from *maculifrons* by the white pubescence, darker tarsi, wholly black antennæ, etc.

Var. *peritomæ* appears to be common in New Mexico. Males before me are from Santa Fé, August 5, at flowers of *Peritoma serrulatum;* Mesilla, September 4, at flowers of *Isocoma wrightii;* Las Cruces, August 24, at flowers of *Solidago canadensis;* Las Cruces, August 26. The size is quite variable.

Since the *peritomæ* form appears to be more common than the presumed typical male, it is an open question whether it should not be considered the proper male of *curta;* and the other, notwithstanding its closer resemblance to the female, the variety. This question will only be settled when we have a good series of specimens from the original locality of *curta*.

ENTOMOLOGICAL NEWS.

[The Conductors of ENTOMOLOGICAL NEWS solicit and will thankfully receive items of news likely to interest its readers from any source. The author's name will be given in each case, for the information of cataloguers and bibliographers.]

To Contributors.—All contributions will be considered and passed upon at out earliest convenience, and, as far as may be, will be published according to date of reception. ENTOMOLOGICAL NEWS has reached a circulation, both in numbers and circumference, as to make it necessary to put "copy" into the hands of the printer, for each number, three weeks before date of issue. This should be remembered in sending special or important matter for a certain issue. Twenty-five "extras," without change in form, will be given free, when they are wanted; and this should be so stated on the MS., along with the number desired. The receipt of all papers will be acknowledged.—ED.

PHILADELPHIA, PA., OCTOBER, 1905.

Much of the classification of the Lepidoptera is based on secondary sexual characters in the male and before classificatory tables can be used the sex of the specimen must be absolutely determined. Should our classification consider one sex only? How shall we determine the females where they differ from the male in appearance? These same secondary sexual characters are used in one part of a subfamily for the separation of genera and not in another, and this makes such usage very unscientific. Such generic division also does violence to the natural laws of relationship and species in different genera are more nearly related than some of the species in a given genus. It is probable that any system of classification that considers one sex only and is based on single anatomical characters must be faulty and will not hold, and that eventually the sum of characters must be the final resort. There is also a tendency to make genera in advance of present necessities and this is a disadvantage to any system of classification. The facies or general appearance may not be a safe guide and may be unscientific, but it will give better results than segregating species into a heterogeneous mass. The student who believes in a multiplicity of genera asks why we don't go back to uninomials if we don't like his ways, but he does not see that we are rapidly approaching the condition of a genus for each species.

Entomological Literature.

AMERICAN INSECTS. By Vernon L. Kellogg, Professor of Entomology and Lecturer on Bionomics in Leland Stanford Jr. University. With many original illustrations by Mary Wellman. Henry Holt & Company, New York, 1905.

This is a work of 674 pages, 13 plates in color, and 812 text figures. There are chapters on the structure and special physiology; development and metamorphoses; classification; insects and flowers; color and pattern and the uses; insects and disease; collecting and rearing. Following Comstock, nineteen orders of insects are recognized, and keys given for their determination. The work is written in a popular style, and the author hopes to foster an interest in insect biology. The paper is good and the typography all that can be desired. The colored plates are as a rule excellent. Some of the figures on plate six are somewhat crowded, and the text figures vary greatly in artistic excellence, as they are from many sources. The half-tone cuts are usually preferable. Figs. 604 and 605 are quite crude. There are some unfortunate and glaring errors in the determination of species, and we note the following: Pl. XI, fig. 3, is the Western *Synchlœ reakirtii*, and not the common *genutia* as stated. Pl. XIII, fig. 3, is not a *Stizus*, but belongs to the family Scoliidæ; fig. 7 is not *Xylocopa virginica*, but probably *arizonense*. The fig. 684, p. 485, is we know not what. *Pelecinus polyturator* ♂ was correctly figured in Packard's Guide in 1869. We are glad to see the interesting chapter on insects and disease, as it places the subject on a higher plane with the general public, and is a matter of immense importance to humanity. Taking the work in its entirety, it is a valuable contribution to the subject, and can't fail to be useful to the student beginner, as well as to entomologists in general. The price of the work was not stated by the publishers.

ILLUSTRATIONS OF DIURNAL LEPIDOPTERA, WITH DESCRIPTIONS. By Andrew Gray Weeks, Jr. Boston. Printed by the University Press, Cambridge, U. S. A. 1905.

This is a sumptuous work of one hundred and seventeen pages and forty-five plates in color containing numerous figures. There are also interesting half-tone illustrations of scenes in Bolivia. Some years ago Mr. Weeks sent a collector to Bolivia, and the pages of this work are devoted to describing the places visited, and making known about sixty-eight new species of butterflies and illustrating them in color. We have nothing but praise for this work, as the colored figures are as good as any extant, and the author deserves great credit for giving the entomological world such a production.—H. S.

J. A. G. REHN and Morgan Hebard have brought back an interesting and valuable series of Orthoptera from Florida.

MR. FORDYCE GRINNELL, JR., was collecting Lepidoptera in Kern County, California.

Notes and News.

ENTOMOLOGICAL GLEANINGS FROM ALL QUARTERS OF THE GLOBE.

DR. E. C. VAN DYKE, of the San Francisco Academy, was after Coleoptera on Mount Rainier.

HENRY L. VIERECK spent the summer in Connecticut and is now in Philadelphia, hard at work on Medicine.

MR. CHAS. SCHAEFFER, of the Brooklyn Institute, spent the summer collecting in Miller Canyon, Huachuca Mountains, Cochise County, Arizona. Messrs. H. G. BARBER and G. Beyer were collecting in the same locality.

DR. D. M. CASTLE and H. A. Wenzel were collecting Coleoptera on Tybee Island, Georgia. They found some very interesting species, mostly Coleoptera of a more Southern range.

DR. HENRY SKINNER spent five weeks with Mr. C. R. Biederman, collecting all orders of insects in Carr Canyon, Huachuca Mountains, Arizona.* In addition to insects, sixteen species of reptiles were secured. The red bug in Southern Arizona may be the same species that is found in the East, but none were dug out to determine this.

COCOONS OF POLYPHEMUS.—For more than twenty years Miss Eliot and I have been very familiar with *Telea polyphemus* in all its stages, have reared it many times, have found the cocoons out of doors, as well as moths and larvæ. Three years ago a cocoon was sent me from Georgia having every appearance of *polyphemus* except that it had a "stem" like that of *promethea* cocoons. The moth had been devoured by some creature, except the wings, thorax, head, antenæ, and eggs, the last being loose in the cocoon, and all resembling *polyphemus*.

In our experience in Eastern New York, Massachusetts, New Hampsphire and Vermont *polyphemus* cocoons were always ovoid, opaque white cocoons without stem or loose silk, almost always found on the ground, and, when on branches of trees or shrubs, held by threads spun against—never around—the twig, and never covering the leaf stem.

I began inquiring of my correspondents, and found that one, in New York, found more suspended than free cocoons; while one in Indiana had always found suspended cocoons except in one instance.

After the first reply I tried giving *polyphemus* larvæ small branches when spinning-time came, but not one of my Vermont or Massachusetts larvæ would spin a stem to its cocoon. Every one drew leaves together in the bottom of the cage and spun on the ground there.

I greatly wish to know if this difference is a recognized local difference or merely an accidental one, and I shall be very grateful for all reports of experience from every one who will be kind enough to write to me.—CAROLINE GRAY SOULE, 187 Walnut Street, Brookline, Mass.

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* We will be glad to hear of other collecting expeditions.

Madison, Wis., July 20, 1905.

DEAR EDITOR:—In the May number of the ENTOMOLOGICAL NEWS there appeared an article by H. L. Viereck, in which he called attention to inadequate descriptions of new species, and the consequent trouble and vexation to the "man handicapped by the lack of material." As I may consider myself to belong to that great category (and it must be remembered the great mass of collectors are similarly situated), I would like to say something in regard to this matter, knowing that I voice the sentiments of many.

It seems to me that Mr. V. does not strike at the root of the evil. The numerous revisions, dichotomic keys, and other contributions along the line of taxonomy are to the great mass of entomologists practically worthless, or, what is worse, confusing. I do not intend to cast any reflection upon the work which our systematists are doing for it must be admitted their work is painstaking and thorough, and I can appreciate the amount of energy spent on a description which takes up a page or a page and a half in print. Thorough work is always worthy of admiration and respect and *a description to be scientific* should be so detailed as to leave no doubt whatever which species is meant. But this mass of detail is confusing when the material is not at hand. Time and again I have honestly tried to conceive a mental picture of the species as described, but the mind simply refuses to grasp and hold the amount of detailed information. And when we try to get an idea of different species of a group we fail utterly.

Truly, an attempt made by the average collector to determine his own specimens from keys, tables and descriptions is a hopeless and discouraging task.

I do not believe that the cause of all this lies in inadequate descriptions. There seems to be a reluctancy to publish explanatory figures. It is not necessary in all cases to figure the entire insect, but merely the distinguishing characteristics by which it differs from its nearest ally. Comparative length and thickness of antennæ, differences in punctuation, grouping of hairs, etc., can be more easily figured than described.

Whether the fault lies with the author or with the publisher is hard to say. A trained biologist is generally, or should be, a good draftsman, and I think it would appeal to him strongly to draw those characteristics which defy description. The trouble seems to be that figures increase the cost of publication of an article to a considerable extent. Financial considerations, however, should not stand in the way of the progress of science, and it is better to publish fewer articles which are useful to the great mass of entomologists than to publish many which, however ingenious and painstaking, represent practically a waste of nervous energy. The cost of publication may be increased four-fold, but the value of the article to the "man handicapped by lack of material" (the great majority) is enhanced out of proportion to the increased cost of publication,—C. B. HARDENBERG.

Dr. F. H. Snow, of the University of Kansas, who headed an entomological collecting expedition to southern Texas early in June, has returned home. The trip was a success in every way, many additions were made to the University museums, and much exchange material was secured. After a rest of a couple of weeks Dr. Snow will leave again for Arizona to continue his collection of material for the University of Kansas.

Dr. Snow brought home with him 10,000 specimens of good material, pinned and labeled. The camp was established near Brownsville, Texas, where a semi-tropical climate prevails, and the insects were of a nature usually found in that sort of location. Three hundred to four hundred of the collection are species that have never been described, and probably 500 species have never before been found in Texas, furnishing interesting data on the geographical distribution of insects.

In my article concerning errors in Dr. Holland's Moth Book published in the June number of the News last season, I stated that figure 26 of plate XXII represented the ♂ of the dark form of the *Feltia volubilis*. I have just learned that I was in error and hasten to correct it. The figure represents *venerabilis* as stated in reference to plate. The rest of my article I believe to be correct. *F. venerabilis* and the dark form of *volubilis* look so much alike that I was deceived in the figure. *Venerabilis* can always be distinguished from *volubilis* by its heavily pectinated antennæ, also by the whiter patagia and blacker collar. Both sexes are exactly alike except for the antennæ, so far as my experiences goes.

I hope you will print this correction as soon as convenient as the error has already muddled one collector at least, and I hope that all who saw my article will see the correction also. I very much regret having made the mistake, as there are already enough of them in existence without any of mine being perpetuated.—E. J. Smith, Natick, Mass.

Every one who remembers the pathetic poem beginning, "A little green peach in an orchard grew, Listen to my tale of woe," will recall the reckless daring of its hero, Johnny Jones, who boldly invaded the orchard and, in the interest of science, staked his peace of mind to test the questionable delights of the fruit. This was Mr. Jones' first essay in nature study.

Turning his attention to a field of effort more suited to his talents, the author has given as illustration of his new work on zoology, exact reproductions of birds, bugs, and beetles—several lines of verse to each, his mother assisting him in spelling. The lines on mosquitos are especially feeling:

Mosquitoes drive you almost mad,
They come around at night,
And when you're not asleep they buzz,
And when you are—they bite.—*Sunset Magazine.*

I HAVE just received from Mr. W. E. Wolfe, of Wray, Colorado, a beautiful specimen of *Argynnis idalia* taken by him at that point. This beautiful fritillary has a wider range than has heretofore been published. The most western point from which it has heretofore been reported is Dodge County, Nebraska, and my collection contains several fine specimens communicated to me in former years by Mr. Dodge. It appears now that it ranges even further westward into Colorado. Mr. Dyar in his valuable list gives the habitat of the species as "the Atlantic States." In "The Butterfly Book" I have stated that it ranges as far west as Arkansas and Nebraska. The map of its distribution, shown in Plate XXI of Scudder's "Butterflies of New England," will have to be very materially changed. If occurring in Colorado, the species is very likely also to be found in Wyoming, Montana, and Dakota.—W. J. HOLLAND, Carnegie Museum.

THE AMERICAN MOSQUITO EXTERMINATION SOCIETY—On December 16, 1903, this Society was provisionally organized under the title of the National Mosquito Extermination Society, but owing to the large number of persons residing outside of the States desirous of joining, it was decided on December 15th and 16th, 1904, when a permanent organization was effected, to substitute "American" for "National."

The Constitution and By-laws adopted provide for seven classes of membership. An active member pays $2.00 annually. A sustaining member is an individual or an organization contributing $5.00 annually. An associate member pays $10.00 a year; a benefactor, $25.00 at one time; a life member, $100.00; a patron, $500.00; and a founder, $1,000.00. Annual dues are payable in January of each year. An appeal is now made for the payment of the 1905 dues and for further contributions.

The work of the Society for the past year has been to distribute all the literature published in 1903-4. It is proposed for the year 1905 to issue a year book for 1904-5, containing the very interesting and important features of the second convention and other matter new to those joining, bringing the record of work, as complete as we have it, up to date.

The public advocacy of scientific relief from mosquitoes for the betterment of communities is rapidly growing, so that it is only necessary to continue the dissemination of information to hasten the carrying out of urgent improvements.

Such a society can, by its conventions and the consequent interchange of ideas and through the circulation of its proceedings and other literature, as well as by its correspondence, lead to many crusades, as this society has already done.

It can gather the accounts of crusades in various sections and put them in the hands of enquirers, which it is constantly doing. Requests come from many parts of the States for suggestions for organizing, and foreign countries are asking for information.

A general body like this can, without just cause of offense, strive for the cure of monumental evils by legislation and otherwise, as it has done in the case of the New Jersey-Staten Island marshes, where only great engineering plans, involving many interests, will permanently change conditions.

It can suggest Government or State and local action and laws, without being considered intrusive.

It can interest the press in the idea and secure articles urging action in respective localities. This has been going on for years past with most important results. There are few periodicals now that treat the question otherwise than as a great public question.

Possibly the most important press aid secured, on account of its five million, and over, readers, is that of the "Ladies' Home Journal," which in its June number gave some plain facts and directions for the abatement of the evil in domestic situations.

At the request of the Society, the New York State University has sent to our selected list the very valuable report on Mosquitos by Dr. E. Porter Felt, the New York State Entomologist, and Dr. Felt is also preparing a pamphlet to go to all the public school teachers of the State.

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HENRY CLAY WEEKS, Sec'y,
Bayside, Long Island, New York City.

"Gran'-pa! I say, gran'-pa! There's such a funny fly on the ceiling!" (No answer.)

"Gran'-pa! There's a 'normous big fly on the ceiling."

"Yes, yes, boy! All right; put your foot on it—don't bother me!"—*Newspaper.*

"I've been working like a dog today," said the State entomologist, wearily.

"How's that," said his friend, guilelessly, "catching insects?"—*Newspaper.*

I HAVE just returned from southern Indiana, where I have been spending a few days. I was very greatly impressed during my visit to that region by the evidences on every side of the ravages of the larvæ of *Ceratomia catalpæ*. On my property at Hope, Bartholomew county, at either side of the main entrance to the place, are two magnificent specimens of *Catalpa speciosa* Warder, over forty feet high. As I drove up to the place I was astonished to discover that they were as bare of foliage as in winter, and was informed that the foliage had been stripped off of them within a week. Near the trunk of one of the trees was a small branch which still had on it some fragments of foliage, and on this branch I found a belated larva of *Ceratomia catalpæ* greedily feeding. On the rear of the property are many trees, both of *Catalpa speciosa* and of *Catalpa catalpa* Linnæus. Every one of these trees was completely stripped of its foliage. In the village I could not find a single catalpa tree that was not either totally denuded of foliage or partially denuded. One very fine cluster of *Catalpa catalpa* surrounding a residence, which I have always admired when in bloom, appeared to be less infested than any other group of trees that I could discover, but all through Bartholomew, Shelby, and Marion Counties, Indiana, wherever I went, I found that the larvæ of this Sphinx had been at work. A few years ago the insect was absolutely unknown in that part of the world. I collected every summer in southern Indiana from about 1882 until 1893, and in all that time I never found there a specimen of the larva or imago of this hawkmoth. When I arrived in southern Indiana the damage had been done, and most of the larvæ had disappeared, evidently to pupate. One of my friends informed me that the pavements at one place, where there is a fine avenue of these trees, had a few days before been simply alive with the caterpillars crawling in every direction, and that it was simply impossible to step without crushing them. I can well believe that there must have been thousands of the larvæ at this point, from the fact that the great avenue of trees had been completely denuded of its foliage, nothing but the petioles of the leaves being left adherent to the branches. —W. J. HOLLAND, Carnegie Museum.

HAVING resigned from the position of Entomologist of the North Carolina Department of Agriculture at Raleigh, to accept a chair in the Agricultural College of Ontario, my address, after September 1, 1905, will be Department of Entomology and Zoology, Ontario Agricultural College, Guelph, Canada. Mailing-lists, etc., will be corrected accordingly. For the present at least, Mr. R. S. Woglum will have charge of the work in North Carolina.—FRANKLIN SHERMAN, JR.

I AM engaged in a study of the North American Scarabæidæ with a view toward an ultimate monograph of this family, and will be glad to receive any information as to habits, larval stages, food, methods of capture, etc. I would also be thankful for damaged specimens for study of the mouth parts, and will gladly pay transportation.—C. B. HARDENBERG, 224 Washington Ave., Madison, Wisconsin.

EXCHANGES.

Not Exceeding Three Lines Free to Subscribers.

☞ These notices are continued as long as our limited space will allow; the new ones are added at the end of the column, and only when necessary those at the top (being longest in) are discontinued.

Promethea Cocoons to exchange for Lepidoptera or other cocoons. D. M. Fuller, 221 Lancaster St., Albany, N. Y.

Wanted.—Uhler's Papers on Hemiptera. Will give cash in exchange or insects, or any other papers. Will also name aquatic Hemiptera for privilege of examination. Write before sending.—J. R. de la Torre Bueno, 25 Broad St., New York City.

Lepidoptera.—Cocoons of North American *Limacodidæ* wanted. Will give *luna* cocoons in exchange.—John A. Grossbeck, 25 Totowa Ave., Paterson, N. J.

North American Lepidoptera wanted in exchange for others. Have hundreds of specimens to exchange.—Send list to Jos. H. Reading, 775 N. Rockwell St., Chicago.

I will make drawings in black and colors, in exchange for perfect Lepidoptera, not found in this locality.—W. Wild, 426 Baynes Street, Buffalo, New York.

Lepidoptera: I have some good Noctuidæ in exchange for desirable North American Heterocera. *Xylina*, *Calocampa* and *Plusiidæ* especially desired. Henry Engel, Box 35, Oak Station P. O., Allegheny Co., Pennsylvania.

Will contract to collect any order or group of insects this season for private collections, museums, colleges or any public institution. Duplicates for sale of all orders from Colorado, Arizona and New Mexico.—Ernest J. Oslar, Alcott P. O., Denver, Colorado.

Eastern Mass. moths wanted in exchange for same; also perfect colored sketches of larvæ of same.—C. V. Blackburn, 101 Pine Street, Woburn, Mass

Wanted.—In all parts of North America correspondents who will collect *Cicindela* and *Chrysomela* for named Coleoptera and Lepidoptera of North, Central and South America, Europe and Australia.—Address Room 23, Zool. Building, University of Chicago, Chicago, Ill.

Psyche.—Copies of the February Number, 1904 (Vol. XI, No. 1), wanted. Cash or exchange given.—H. H. Newcomb, 43 Tremont Street, Boston, Mass.

Wanted in exchange for beautiful exotic and native butterflies, a live Japanese Nightingale or other brilliant colored birds.—Chas. F. Timm, 1255 Greene Avenue, Brooklyn, N. Y.

Exchange —Perfect fertile ova of *C. colleta*, *A. luna* and *E. imperialis*, which I would like to exchange for fertile ova of other species.—Alfred C. Sampson, Sharon, Mass.

Coleoptera.—I wish to buy North and Central American beetles.—Fred. C. Bowditch, 164 Rawson Road, Brookline, Mass.

Have a number of books and pamphlets on Lepidoptera, also a zither to exchange for books not in my library, or for moths, geometers or micros.—Wm H. Broadwell, 275 High Street, Newark, N. J.

Correspondence wanted in order to exchange the common Lepidoptera of Cape Cod, for those from elsewhere.—Alfred C. Redfield, Barnstable, Mass.

Wanted.—Riley's 2d, 5th and 9th Misouri Reports. Will pay cash for same.—H. H. Newcomb, 43 Tremont Street, Boston Mass.

Exchange.—For a compound microscope, specifications, rack and pinion and fine adjustment, draw tube, one inch eye-piece, one inch and one-sixth inch objectives, divisible, inclination joint in case, with lock. Correspondence desired.—C. E. Montgomery, 10 Cabot Street, Portsmouth, N. H.

For Exchange.—Lepidoptera belonging to DeKalb County, Georgia, for specimens not found in that locality.—Robert Windsor Smith, Kirkwood, Georgia.

Proctotrypoidea Wanted.—Will identify specimens for privilege of study, or will take them in exchange for identified specimens of other groups.—C. T. Brues, Public Museum, Milwaukee, Wis.

Wanted.—As complete a named set as possible of the Pyralidæ of North America. Can offer fine named Indo-Malayan Lepidoptera in exchange. Ernest Swinhoe, 6 Gunterstone Road, West Kensington, London W, England.

Lepidoptera from Southern States wanted in quantity for cash.—Please make offer to Charles Faust, Harvard, Ill.

Elateridæ and *Buprestidæ* wanted from all parts of North America, in exchange for North American Coleoptera. Cash paid for special desiderata.—C. O. Houghton, Del. Coll. Agric. Expt. Sta., Newark, Del.

Ova wanted.—I will pay 3 cents each for any number up to 100 of fertile eggs of *Enchætisa Orgenensis* accompanied by the parent female.—H. H. Lyman, 384 St. Paul Street, Montreal, Canada.

I have many fine specimens of Entomology in papers left over from last season and will exchange and collect in this locality for Southern and Western specimens.—C. H. Ross, Des Moines, Iowa.

Wanted to Exchange.—Butterflies and moths from every country in the world. Many beautiful foreign specimens to exchange. California specimens in large quantities.—R. C. Winslow, Santa Clara, California.

Wanted.—Insect Life, Vol. iii, 2, 4, 11, 12; iv, 5, 6, 7, 8, 9, 10; v, 3, 4; vi, 3. Also other works on economic entomology not in my library. Will pay cash or exchange.—J. C. Crawford, Box, 208, Dallas, Texas.

Wanted.—Records of Captures of Connecticut insects—especially the rarer species—for the preparation of a State list. Orthoptera and Hymenoptera records desired at once.—W. E. Britton, State Entomologist, New Haven, Conn.

Will collect flies and bees.—L. R., Box 185, Fredericksburg, Va.

Wanted mounted humming birds and other brilliant colored birds, in exchange for rare exotic, native butterflies and moths, cocoons of *Ceanothii*, *Gloverii* and pupæ and cocoons of other species.—C. F. Timm, 170 Bleeker St., Brooklyn, N. Y.

Cicindelidæ of the world desired. Good exchange offered.—H. F. Wickham, Iowa City, Iowa.

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